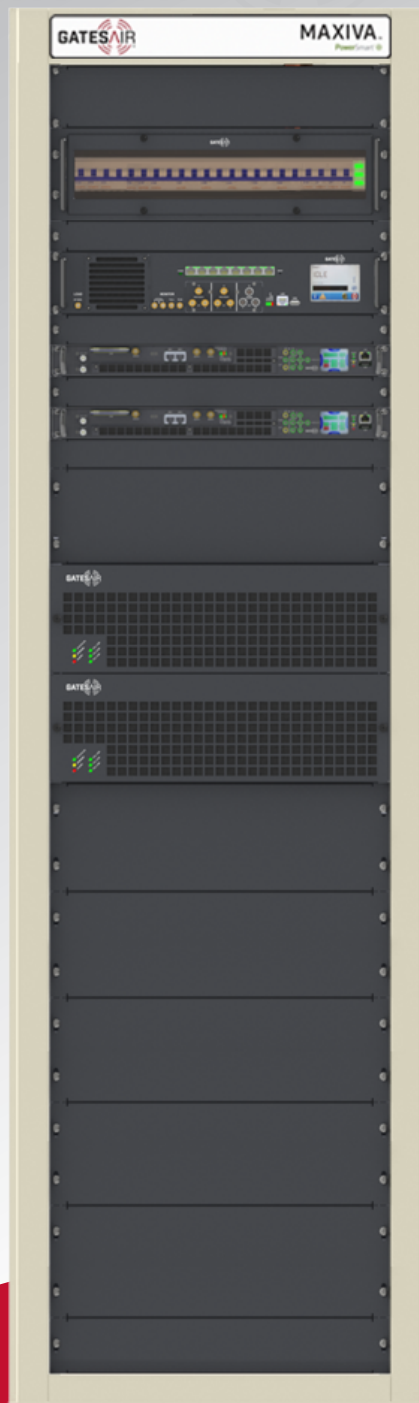


MAXIVA™ UAX-OP / VAX-OP

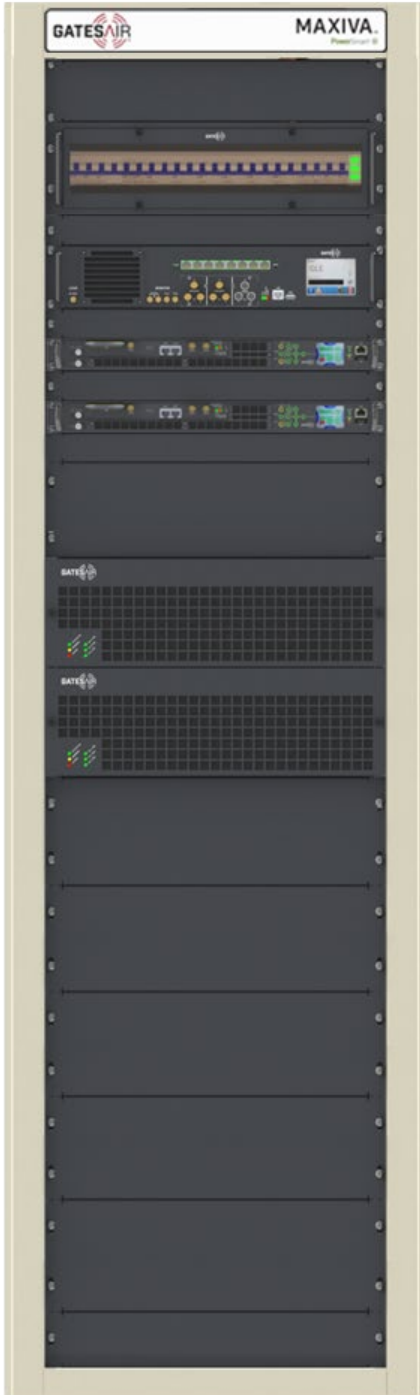
High-Efficiency UHF & VHF Air-Cooled
Digital TV/DAB Transmitters



GATESAIR Connecting
What's Next

WE DID IT... AGAIN.

GatesAir has once again shattered the expectations of what is possible with high-power, solid-state transmitters in terms of efficiency, power density, and performance.



Power levels from up to 7kW UHF / 12.8kW VHF Band III / 10.8kW VHF Band I / 13.6kW DAB/DAB+

High-efficiency broadband Doherty power amplifiers for all bands (VHF and UHF)

Software defined modulation for future upgradeability

Doherty amplification for highest efficiency and Maximum energy savings

Hot-swappable power amplifiers

Separate hot-swappable compact power supplies, 3 per PA; for 2 of 3 full power redundancy**

Optimized for best performance using Real Time Adaptive Correction

Innovative, High-efficiency air-cooling system with Variable speed fans

**Power supply redundancy per PA module



Main Features

- High power density, compact dimensions
- Power levels per rack up to 7kW UHF, 6.4kW Band III, 10.8kW Band I (pre-filter)
- Multi-rack systems available
- High-efficiency broadband Doherty PA design
- Dual drive option
- Enhanced power supply redundancy
- Digital modulations: ATSC, DVB-T, DVB-T2, ISDB-T/Tb, DTMB, DAB/DAB+
- Analog models also available (see Maxiva OP-AN Series brochure)
- S/W Upgradeable architecture
- Adaptive pre-correction included
- Optional high-stability GPS/GLONASS receiver
- Control system with GPIO and Web GUI
- Efficient air-cooling system with variable-speed fans



UAX-OP-800 with Dual Drive



UAX-OP-2000 with Dual Drive



UAX-OP-7000-R36 with Dual Drive

Maxiva™ UAX-OP / VAX-OP Specifications

System	
UHF digital output power	200W to 7kW rms @ MER 38dB typ. (DVB-T/T2, ISDB-T)
UHF analogue output power	Refer to Maxiva UAX/VAX-OP-AN Brochure
VHF digital output power	250W to 12.8kW rms VHF-Band III 900W to 1,500W rms VHF-Band I
VHF analogue output power	Refer to Maxiva UAX/VAX-OP-AN Brochure
Configurations	Single or dual driver
RF output connector	7/8" (f) or 1 5/8" (f) or 3 1/8" (f) or 4 1/8" (f), EIA, 50 Ohm (according to output power and frequency band)
Frequency agility	UHF Band IV and V or VHF Band III/VHF Band I
Frequency resolution	1 Hz
Precorrection	Real Time Adaptive Correction
Exciter	UAXT/VAXT UC series exciter/driver
Integrated matrix circuits	ASI/BTS/Video (dual), audio and RF
BTS/ASI/Video matrix connectors	BNC (f), 75 Ohm
Cooling	Forced-air cooling, multiple fans per PA
Modulator	
DVB-T/DVB-T2	
Standard	EN300744, EN302304, EN302755 V1.3.1 (DVB-T2-Lite), TS101191, TS102773, (T2-MI), TS102034
Inputs	4x ASI BNC (f), 75 Ohm or 2x ASI BNC (f), 75 Ohm and 2 x RJ45 TS oIP 10/100/1000 Seamless switch between any input Hierarchical and not hierarchical (DVB-T)
FFT	1K (DVB-T2), 2K, 4K, 8K, 8K ext. (DVB-T2), 16K & 16K ext. (DVB-T2), 32K & 32K ext. (DVB-T2)
Code rate	All modes available according to the standard Block Short or Normal (DVB-T2) DVB-T: Reed-Solomon (204, 188) DBT-T2: BCH, LDPC
Guard Interval	1/32, 1/16, 1/8, 1/4, 19/256 (DVB-T2), 19/128 (DVB-T2), 1/128 (DVB-T2)
Constellation	QPSK, 16QAM, 64QAM, 256QAM (DVB-T2). Rotated and non-rotated (DVB-T2)
MISO processing	Supported
ISDB-Tb	
Standard	ABNT NBR 15601, ABNT NBR 15603
Inputs	4x ASI TS/BTS BNC (f), 75 Ohm or 2x ASI TS/BTS BNS (f), 75 Ohm and 2x RJ45 TS/BTS oIP 10/100/1000 Seamless switch between any input
FFT	Mode 1 (2K), Mode (4K), Mode 3 (8K)
Code Rate	1/2, 2/3, 3/4 5/6 7/8
Guard Interval	1/4, 1/8, 1/16, 1/32
Hierarchical Modulations	Up to 3 layers
Constellation	QPSK, 16QAM, 64QAM
Time Interleaver	Fully Supported
Partial Reception	Always 37dB

DAB/DAB+	
Standard	EN300401, ETS 300 799
Inputs	4x ETI (NI[G703], NA5376[G704] or NA5592[G704]) BNC (f), 75 Ohm or 2x ETI BNC (f), 75 Ohm + 2x EDI (ETSI TS 102 693) RJ45 10/100/1000 Seamless switch between any input
Transmission Modes	Mode I, II, III, IV (Automatically detected from the ETI stream, or user selectable)
Operation	MFN or SFN operations
ATSC	
Standard	A/53, A/110
Inputs	4x ASI/SMPTE-310M BNC (f), 75 Ohm or 2 ASI/SMPTE-310M BNC (f), 75 Ohm and 2x RJ45 TS oIP 10/100/1000 Seamless switch between any input
Modulation	8-VSB
Input Bit Rate	19.39 Mbit/s
Bandwidth	6 MHz
Max Processing Delay	Up to 1 second (programmable)
Analogue	
Standard	B, G, D, K, M, N, I
Inputs	Video BNC (f), 75 Ohm, audio Tini-QG "Mini XLR", 6 Pin (m), 600 Ohm
Color System	PAL, NTSC
Integrated NICAM Encoder	Available
Satellite Receiver (Option)	
Standard	ETSI EN 300 421 (QPSK) (DVB-S) ETSI EN 302 307 (QPSK, 8 PSK, 16APSK) (DVB-S2) ETSI EN 50083-9 (ASI) ETSI EN 50221 (Common Interface)
DVB-S2	VCM, CCM, Multi Stream and Single Stream, Normal and Short FEC frames
Symbol Rate	1 - 45 Msym/s (DVB-S) 2 - 45 Msym/s (DVB-S2)
Constellation	QPSK, 8PSK, 16APSK
FEC	Automatic, all modalities available according to the standard Block short or Normal DVB-S: Reed-Solomon (204, 188) DVB-S2: BCH, LDPC
Roll-Off	0.2, 0.25, 0.35
Input Connector	F(f), 75 Ohm
Frequency	L-band 930 ÷ 2250 MHz
LNB Control Voltage	Off, +13/18 Vdc, 22kHz, 0.25 A (overload protection)
RF Input Level	40 ÷ 100 db/uV (with attenuator)
Output Connector	ENC(f), 75 Ohm
Modality	188 bytes
Max Input Bit Rate	80 Mbps (CAM limit: 72 Mbps)
CAM Interface	PCMCIA DVB-CI Common Interface
CA Mode (Conditional Access)	Multicrypt, Simulcrypt

CAS Support	Mediaguard, Viaccess, Irdeto, Conax, BISS with professional multiprogram CAM (descrambling of up to 24 Elementary Streams) Betacrypt, Cryptoworks, Nagravision with standard consumer CAM (descrambling of up to 4 services)
GNSS (GPS/GLONASS) [Option]	
Input Connector	N (f), 50 Ohm
Input/Monitor Output 10 MHz	BNC (f), 75 Ohm
Input/Monitor Output 1 PPS	BNC (f), 75 Ohm
Phase Noise	-140 dBc/Hz @10 KHz -150 dBc/Hz @ 100 kHz
Stability	1e-12 / 24 hours with disciplined OCXO
Hold-over Stability	5 μ s after 5 hours (optional 1 us after 24 hours)
Mechanical	
Rack	Model \leq 2,000W, rack is optional Model $>$ 2,000W, rack is included
Width	600 mm
Rack Height	36 RU rack models: 1800 mm Refer to Key Features table for models which include rack
Depth	1000mm Refer to Key Features table for models which include rack

Control	
TFT touchscreen Web GUI SNMP GPIO	
Environmental	
Operating Temperature Range	-5°C ÷ 45°C
Max. Relative Humidity	95% non-condensing
Max. Operating Altitude	2500 m. a.s.l. (>2500 m. optional)
Electrical	
Power Supply	< 2,000W models: Exciter: Single phase 100-240 V AC, 50/60 Hz, Amplifier: Single phase 185-264 V AC, 50/60 Hz >2,000W models: 208-240 V 3-Phase 50/60 Hz, or 380-415V 3-Phase, 50/60 Hz
Efficiency	Up to 45% efficiency in digital (VHF & UHF models)
NOTES	
To comply with the applicable standards and limit values for the suppression of out-of-band emissions (and in the case of digital standards, also for maintaining the required shoulder distance), the transmitter may only be operated with suitable filters at the RF output.	
Specifications are subject to change without notice.	

Key Features

Air-Cooled Digital UHF/VHF OP Models

Mid- to High-Power Digital TV Transmitter Model	COFDM Broadband Power Before Filter (r.m.s. W)	COFDM Wideband (120MHz) Power Before Filter (r.m.s. W)	8VSB Broadband Power Before Filter (r.m.s. W)	8VSB Wideband (120MHz) Power Before Filter (r.m.s. W)	Total # of PAs	Configuration / Rack Style	# of Tx Racks
UHF Band IV & V							
UAX-OPG2D-200	200		300		1	2+1 RU	Option
UAX-OPG2D-350-3U	350		400		1	2+1 RU	Option
UAX-OPG2D-350-4U	350		600		1	3+1 RU	Option
UAX-OPG2D-600	600		750		1	3+1 RU	Option
UAX-OPG2E-250	250	300	350	400	1	2+1 RU	Option
UAX-OPG2E-400-3U	400	400	400	400	1	2+1 RU	Option
UAX-OPG2E-250-4U	250	300	350	400	1	3+1 RU	Option
UAX-OPG2E-450	450	550	700	800	1	3+1 RU	Option
UAX-OPG2E-550	550	550	700	800	1	3+1 RU	Option
UAX-OPG2E-700	700	750	900	1,000	1	3+1 RU	Option
UAX-OPG2D-800	800		1,100		1	3.5+1 RU	Option
UAX-OPG2D-1100	1,100		1,500		1	3.5+1 RU	Option
UAX-OP-1000	1,000	1,100	1,500		1	3.5+1RU	Option
UAX-OPG2D-1400	1,400		2,000		1	3.5+1 RU	1
UAX-OPG2E-1000	1,000	1,100	1,300	1,400	1	3.5+1 RU	1
UAX-OP-1400	1,400	1,400	2,000		1	3.5+1 RU	1
UAX-OPG2E-1300	1,300	1,500	2,000	2,000	1	3.5+1 RU	1
UAX-OPG2E6-1300	1,300	1,500	2,000	2,000	1	3.5+1 RU	1
UAX-OPG2E-1750	1,750	2,000	2,000	2,000	1	3.5+1 RU	1
UAX-OP-2000	2,000	2,300	2,000	2,300	1	3.5+1 RU	1
UAX-OP-2P2D-2R36	750		1,000		2	36 RU	1
UAX-OP-2P2D-3R36	750		1,000		2	36 RU	1
UAX-OP-2P3D-R36	1,200		1,400		2	36 RU	1
UAX-OP-2P6D-R36	2,200		3,000		2	36 RU	1
UAX-OP-2P7D-R36	2,500		3,400		2	36 RU	1
UAX-OP-3P6D-R36	3,300		4,500		3	36 RU	1
UAX-OP-3P7D-R36	3,750		5,400		3	36 RU	1
UAX-OP-4P6D-R36	4,400		6,000		4	36 RU	1
UAX-OP-4P7D-R36	5,000		6,800		4	36 RU	1
UAX-OP-2P2E-R42	1,000	1,000	1,100	1,100	2	42 RU	1
UAX-OP-2P6E-R36	2,600	3,000	4,000	4,000	2	36 RU	1
UAX-OP-2P7E-R36	3,000	3,500	4,000	4,000	2	36 RU	1
UAX-OP-3P6E-R36	3,900	4,500	6,000	6,000	3	36 RU	1
UAX-OP-3P7E-R36	4,500	5,250	6,000	6,000	3	36 RU	1
UAX-OP-4P2E-R42	2,000	2,000	2,200	2,200	4	42 RU	1
UAX-OP-4P6E-R36	5,200	6,000	8,000	8,000	4	36 RU	1
UAX-OP-4P7E-R36	6,000	7,000	8,000	8,000	4	36 RU	1

Air-Cooled Digital UHF/VHF OP Models (continued)

Mid- to High-Power Digital TV Transmitter Model	COFDM Broadband Power Before Filter (r.m.s. W)	8VSB Broadband Power Before Filter (r.m.s. W)	Total # of PAs	Configuration / Rack Style	# of Tx Racks
VHF Band III TV Models					
VAX-OPG2-250	250	350	1	2+1 RU	Option
VAX-OPG2-450	450	450	1	2+1 RU	Option
VAX-OPG2-500	500	700	1	3+1 RU	Option
VAX-OPG2-700	700	900	1	3+1 RU	Option
VAX-OPG2-1100	1,100	1,400	1	3.5+1 RU	Option
VAX-OP-1100	1,100	1,400	1	3.5+1 RU	Option
VAX-OPG2-1400	1,400	1,800	1	3.5+1 RU	Option
VAX-OP-1400	1,400	1,800	1	3.5+1RU	Option
VAX-OPG2-1800	1,800	2,400	1	36 RU	Option
VAX-OP-2500	2,300	2,300	1	3.5+1 RU	Option
VAX-OP-2P6-R36	2,800	3,600	2	36 RU	1
VAX-OP-3P6-R36	4,200	5,400	3	36 RU	1
VAX-OP-4P6-R36	5600	7200	4	36 RU	1
VAX-OP-2P7-R36	3200	4100	2	36 RU	1
VAX-OP-3P7-R36	4800	6150	3	36 RU	1
VAX-OP-4P7-R36	6400	8200	4	36 RU	1
VAX-OP-6P7-R36	9600	12300	6	36 RU	2
VAX-OP-8P7-R36	12,800	16,400	8	36 RU	2
VHF Band I Models	<i>Power COFDM (Wideband I L&H)</i>	<i>Power ATSC (Wideband I L&H)</i>			
VAX-OPG2-900L	900	1200	1	3.5+1RU	Option
VAX-OPG2-1200L	1,200	1,600	1	3.5+1 RU	Option
VAX-OPG2-1350L	1,350	1,750	1	3.5+1 RU	Option
VAX-OPG2-1500L	1,500	2,000	1	3.5+1 RU	Option
VAX-OP-2P7L-R36	2700	3500	2	36 RU	1
VAX-OP-4P7L-R36	5400	7000	4	36 RU	1
VAX-OP-6P7L-R42	8100	10500	6	42 RU	1
VAX-OP-8P7L-R42	10800	14000	8	42 RU	1
<i>Note: For higher-power level Band I transmitters, refer to Maxiva VAXTE Brochure</i>					

Air-Cooled DAB OP Models

Mid- to High-Power DAB Transmitter Model	DAB Power Before Filter (W)	Total Number of PA's	Configuration / Rack Style	# of Tx Racks
VHF Band III Models				
VAX-OPG2-300-DA	300	1	2+1 RU	Option
VAX-OPG2-450-DA	450	1	2+1 RU	Option
VAX-OPG2-550-DA	550	1	3+1 RU	Option
VAX-OPG2-750-DA	750	1	3+1 RU	Option
VAX-OPG2-1200-DA	1,200	1	3+1 RU	Option
VAX-OPG2-1500-DA	1,500	1	3.5+1 RU	Option
VAX-OPG2-1900-DA	1,900	1	3.5+1 RU	Option
VAX-OP-2P6-DA	3,000	2	36 RU	1
VAX-OP-2P7-DA	3,400	2	36 RU	1
VAX-OP-3P6-DA	4,500	3	36 RU	1
VAX-OP-3P7-DA	5,100	3	36 RU	1
VAX-OP-4P6-DA	6,000	4	36 RU	1
VAX-OP-4P7-DA	6,800	4	36 RU	1
VAX-OP-6P7-DA	10,200	6	36 RU	2
VAX-OP-8P7-DA	13,600	8	36 RU	2
<i>Note: For lower-power level DAB transmitters, refer to Maxiva UAXT Ultra-Compact / VAXT Ultra-Compact Brochure</i>				





GatesAir efficiently leverages broadcast spectrum to maximize performance for multichannel TV and radio services, offering the industry's broadest portfolio to help broadcasters wirelessly deliver and monetize content. With 100 years in broadcasting, GatesAir's exclusive focus on the over-the-air market helps broadcasters optimize services today and prepare for future revenue-generating business opportunities. Until 2019, research, development and innovation has been driven from the company's facilities in Mason, Ohio and supported by the long-standing manufacturing center in Quincy, Illinois. In May 2019, the company acquired an Italian company operating as GatesAir S.r.l. which provides an additional research, development and service location within the EU.

GatesAir's turnkey solutions are built on two pillars: Transport and Transmit. The company is best known for powering over-the-air analog and digital radio/TV stations and networks worldwide with the industry's most operationally efficient transmitters. Groundbreaking innovations in low, medium and high-power transmitters reduce footprint, energy use and more to establish the industry's lowest total cost of ownership. Support for all digital standards and convergence with mobile networks ensure futureproof systems.

In television, GatesAir supplies proven, trusted wireless UHF and VHF solutions across all power requirements to support single-station over-the-air broadcasters on up to large national networks. The industry's most reliable software-definable exciters ensure broadcasters can optimize analog networks and quickly transition to digital TV in the field, with support for all major global DTV standards. GatesAir also supplies a wide array of over-the-air accessories to maximize transmitter control, network redundancy and signal compliance – along with installation, commissioning and ongoing support services – to deliver the industry's strongest turnkey approach for customers worldwide.

Award Winning Service

From experienced installation and field service engineers to responsive factory experts, GatesAir provides the strongest service team in the broadcast transmission industry. Couple that team with reliable products, responsible service parts inventories and a demonstrated commitment to the industry, and you have a service offering that's perfectly matched to your equipment and your operations.

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